



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.		
10/536,833	01/20/2006	Maurizio Galimberti	07040.0227-00000	6471		
22852	7590	10/16/2009	EXAMINER			
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413				FISCHER, JUSTIN R		
ART UNIT		PAPER NUMBER				
1791						
MAIL DATE		DELIVERY MODE				
10/16/2009		PAPER				

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/536,833	GALIMBERTI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Justin R. Fischer	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 21 September 2009.

2a) This action is **FINAL**.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 49-54 and 60-98 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 49-54 and 60-98 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date <u>092809</u> .	6) <input type="checkbox"/> Other: _____ .

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 21, 2009 has been entered.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 49-54 and 60-98 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsunaga (JP 2002-347410, newly cited) and further in view of Larson (US 2003/0032710, newly cited). Matsunaga teaches a motorcycle tire including a carcass structure 6, a belt 7 formed of cords wound at substantially zero degrees with respect to the equatorial plane of the tire (circumferential belt layer), a tread band 2A, a pair of sidewalls 3, and a pair of bead wires 5. The reference further teaches the inclusion of an inner tread layer 2B radially outside said circumferential belt layer- such a layer can be viewed as the claimed "at least one layer of crosslinked elastomeric material". One of ordinary skill in the art at the time of the invention would have

recognized such a layer as being formed with a conventional diene-based rubber and such would be expected to be crosslinked or vulcanized by conventional tire manufacturing steps (heating in mold). Additionally, Matsunaga teaches that layer 2B has a greater hardness than tread band 2A.

Matsunaga, however, is silent as to the specific composition used to form said inner tread layer 2B. Larson, on the other hand, recognizes the inclusion of the claimed "layered inorganic material" in a tire tread in order to improve the stiffness/modulus of said tread. As stated above, it is desired for the inner tread layer 2B to demonstrate a high hardness and it is well recognized that hardness and modulus generally have a positive relationship (higher hardness equates to higher modulus). It is emphasized that Larson desires inner tread layer 2B to have high mechanical properties (hardness, modulus, etc.) and such is accomplished by including the claimed inorganic material in a basic tire rubber composition. Thus, one of ordinary skill in the art at the time of the invention would have been amply motivated to include the claimed "layered inorganic material" in the "at least one layer of a crosslinked material" (inner tread layer 2B).

Lastly, with respect to the independent claim, Larson suggests the inclusion of intercalated organoclays that are at least partially exfoliated in situ, wherein the exfoliated platelets have a thickness of about 1 nm and the particles of the stacked platelets have a thickness between 10 and 40 nm (Paragraph 46).

With respect to claims 51, 52, 84, and 85, a portion of the intercalated organoclays are exfoliated, such that both intercalated clays and exfoliated portions are present.

Regarding claims 53, 54, 88, and 89, the increase in d-spacing appears to be a direct result of incorporating said inorganic material in an elastomeric composition.

Applicant has not identified any specific processing means that results in the claimed increase and as such, one of ordinary skill in the art at the time of the invention would have expected the rubber layer of Hara in view of Larson to demonstrate the claimed increase in d-spacing.

With respect to claims 60 and 61, the tire of Matsunaga further includes a rubber layer 9 disposed between the carcass and the circumferential belt layer- such a layer can similarly be viewed as the claimed "at least one layer of a crosslinked material". In this instance, one of ordinary skill in the art at the time of the invention would have found it obvious to include the claimed "at least one layered inorganic material" in order to provide improved stiffness/reinforcement (in view of Larson). It is emphasized that Matsunaga desires the rubber layer 9 to have a greater hardness than the tread band 2A (in an analogous manner to the relationship between the tread band 2A and the inner tread layer 2B) (Paragraph 24). As such, one of ordinary skill in the art at the time of the invention would have been amply motivated to include the claimed inorganic material in the rubber layer of Matsunaga. Lastly, rubber layer 9 has a thickness between 0.8 and 3.5 mm, which substantially overlaps the claimed range (Paragraph 23).

As to claims 62 and 63, Larson suggests the inclusion of between 1 and 20 phr of said layered inorganic material (Paragraph 21).

With respect to claims 64-67 and 91, Larson suggests the preferred inclusion of smectite clay, such as montmorillonite clay (Paragraph 21).

Regarding claims 68 and 69, the inorganic material/clay of Larson is treated with a quaternary ammonium salt (Paragraphs 24+).

With respect to claims 70-73, 92, and 93, the claimed elastomers represent the well known conventional elastomers used in the tire industry, as shown for example by Larson (Column 6, Lines 30-50). It is emphasized that each of the claimed elastomers is extensively used in a wide variety of tire components, including the belt structure. Lastly, the claimed elastomers are recognized as having a glass transition temperature in accordance to the claimed invention.

As to claims 74-77, 81, 94, and 98, silane coupling agents are conventionally used in tire rubber compositions to “couple” or connect silica to a base elastomer component, which ultimately improves the properties of a given tire component. Larson provides one example of such a composition (Paragraphs 50+).

With respect to claims 78-80 and 85-97, tire compositions are generally described as including a plurality of reinforcing fillers, such as carbon black, silica, and/or clay materials. In this instance, Larson recognizes the manufacture of tire rubber layers comprising each of the aforementioned reinforcing fillers (Paragraph 53).

### ***Response to Arguments***

4. Applicant's arguments with respect to claims 49-54 and 60-98 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nakagawa (JP '512), Oya (JP '716), Yamashita (JP '503), and Piitta (JP '705) teach tire constructions including a circumferential belt layer and at least one layer of crosslinked/vulcanized material.
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R. Fischer** whose telephone number is **(571) 272-1215**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Art Unit: 1791

Justin Fischer  
/Justin R Fischer/  
Primary Examiner, Art Unit 1791  
October 2, 2009